INDIANA STATE BOARD OF HEALTH.

PUBLIC HEALTH IN INDIANA

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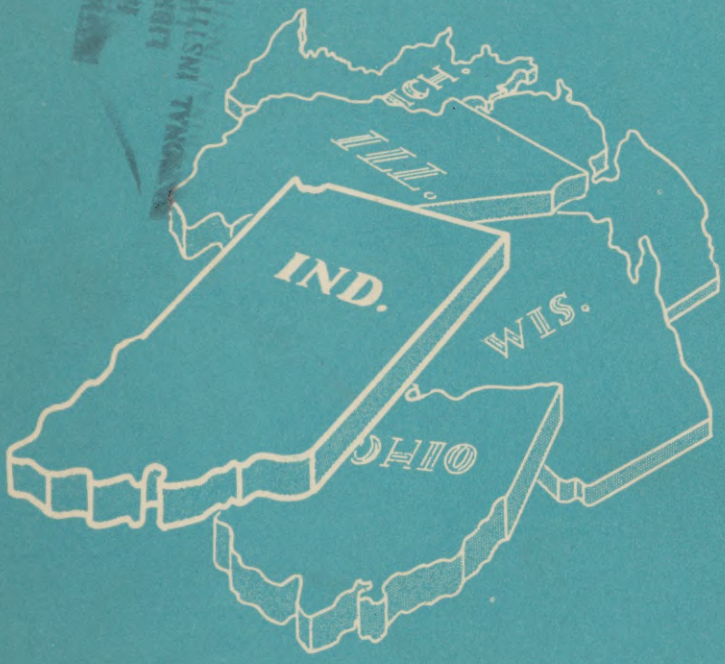

INDIANA STATE BOARD OF HEALTH

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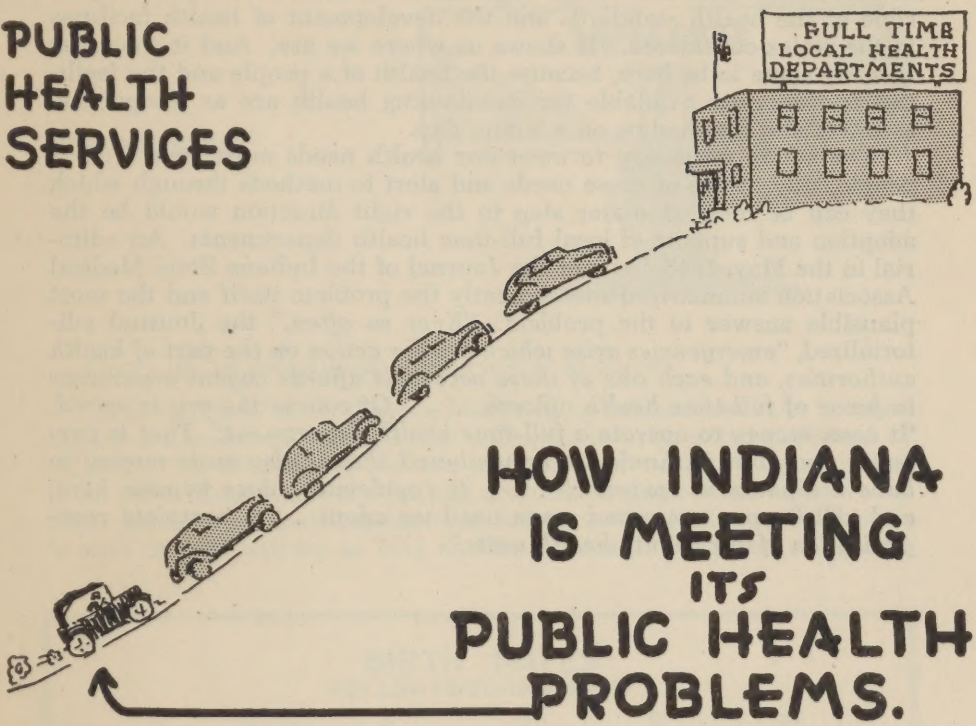
1098 West Michigan Street
Indianapolis 7, Indiana
L. E. BURNEY, M. D., State Health Commissioner

PUBLIC HEALTH SERVICES



HOW INDIANA IS MEETING ITS PUBLIC HEALTH PROBLEMS.

Health is one of the greatest assets any person, state, or nation can possess. Unfortunately, it is not a commodity which can be purchased directly over the counter of a drug or grocery store. A fair assurance of health for great numbers of people can be had, however, by purchasing those items and services which stimulate, protect, or restore good health, and prevent ill-health. It is through protection, prevention, and treatment of disease that better health for the people of Indiana will come.

Among all the forty-eight states of this nation, it has been said, Indiana ranks about thirty-seventh in public health attainment. That position is hardly commendable. The purpose of this booklet is to sketch the health status of Indiana, to show how we stand in comparison with our neighboring states and the nation as a whole, to relate our standard of health directly to health services offered, and finally to recommend the measures the facts indicate.

The states of Illinois, Michigan, Ohio and Wisconsin were chosen as the basis for comparison in this study because of their general similarity to Indiana. As a region they form a unit, the North-Central States, with more common than dissimilar features. The period 1939-

1943 was selected for study because it is the most recent five-year span for which reliable statistics can be obtained. True, five years is a relatively short time and will not admit exhaustive research. But analysis of that period does one thing: it presents the most recent picture possible of the health standards and the development of health facilities in the states considered. It shows us where we are. And it shows us how we came to be here, because the health of a people and the facilities and services available for maintaining health are as inseparable as a boy and his shadow on a sunny day.

The action necessary to meet our health needs must stem from a people fully aware of those needs and alert to methods through which they can be met. A major step in the right direction would be the adoption and support of local full-time health departments. An editorial in the May, 1946, issue of the Journal of the Indiana State Medical Association summarized rather neatly the problem itself and the most plausible answer to the problem. *"Ever so often,"* the Journal editorialized, *"emergencies arise which call for action on the part of health authorities, and each one of these occasions affords cogent arguments in favor of full-time health officers. . . . Of course the cry is raised, 'It costs money to operate a full-time health department.' That is perfectly true, but it should be remembered that it also costs money to have a diphtheria epidemic! . . . It (epidemics) does happen here, and will happen again and again until we adopt . . . complete reorganization of our county health units."*

THE PROBLEM

Going up, or going down? Which are we doing?

Vital statistics[1] show that the birth rate in Indiana has been increasing for a number of years. In its wake, come augmented problems of child health. Whether or not the birth rate continues to rise remains to be seen. Regardless of that, the problem of protecting the newborn from disease and assisting them to maintain the best possible health is with us and will be as long as life continues. Programs of parent

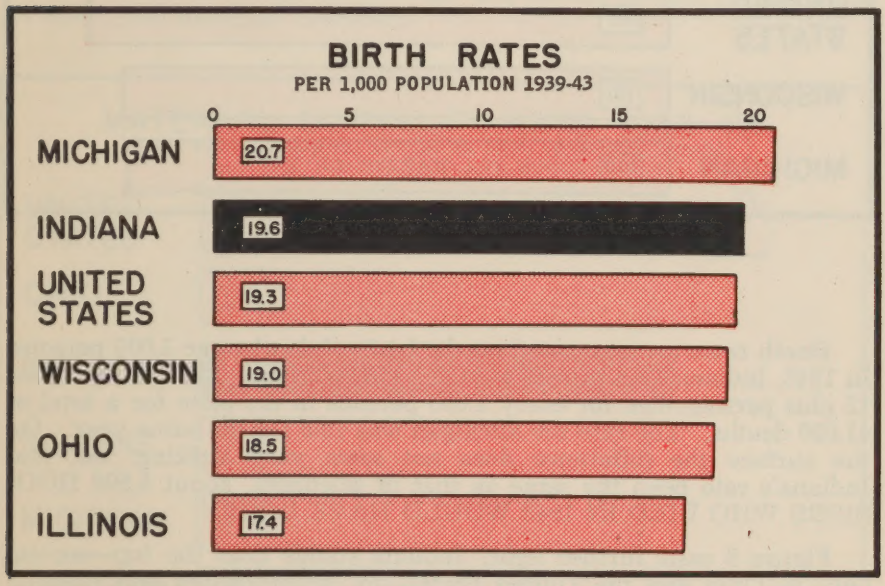


Figure 1

[1] The bar charts used in this section are 5-year averages based on figure 15.

education, constant encouragement of widespread immunization of infants, and other accepted public health practices must be extended if maintenance of "the best possible health" is to be realized.

Although the Indiana death rate has been decreasing for the past 20 years, it has not declined at the highest speed possible. Death rates decrease as public and private health facilities and services increase. Indeed, they serve as one type of index of general health standards and facilities. For the past five years Indiana's rate has been higher than that of the United States or those of our neighboring states of Illinois, Michigan, Ohio, or Wisconsin.

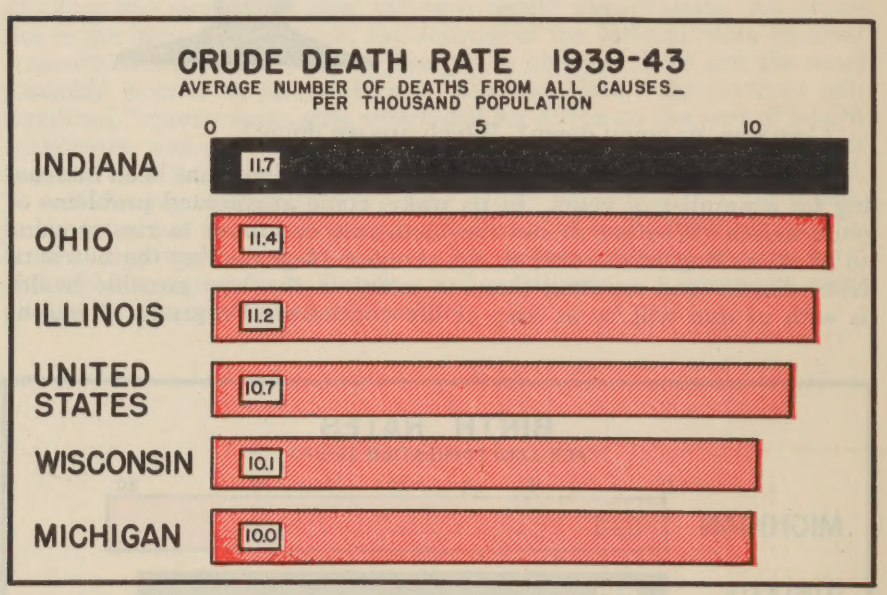


Figure 2

Death rates are computed on the basis of deaths per 1,000 persons. In 1943, Indiana's death rate was 12.1. (See Figure 15.) In that year 12 plus persons died for every 1,000 persons in the state for a total of 41,050 deaths. The rate for Michigan was 10.5 for the same year. On the surface the difference does not seem very striking, but had Indiana's rate been the same as that of Michigan, about 5,500 HOOSIERS WHO DIED IN 1943 WOULD HAVE LIVED!

Figure 3 casts further light. Indiana stands near the top—second only to Ohio and the United States—in infant deaths and holds a similar, unenviable position in its attempts to limit maternal mortality. However, Indiana improved its control of mother deaths during the five years 1939-1943.

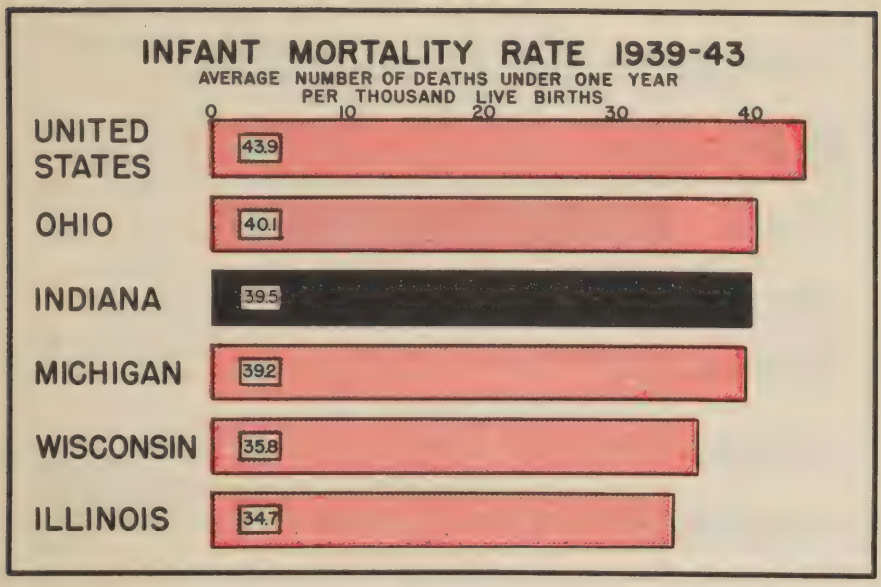


Figure 3

(See Figure 15.) Despite that improvement, which is commendable on a relative basis only, Indiana can and should further reduce both its infant and maternal mortality.

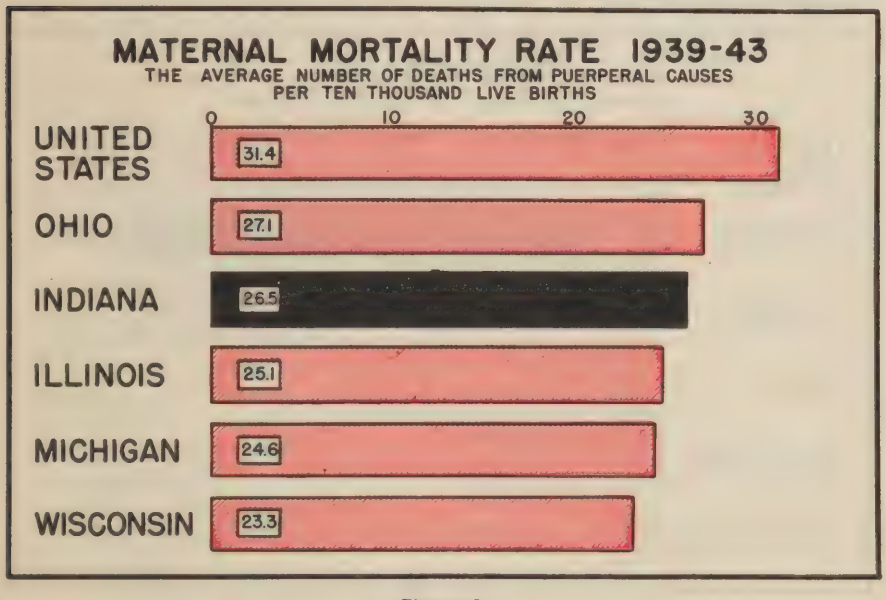


Figure 4

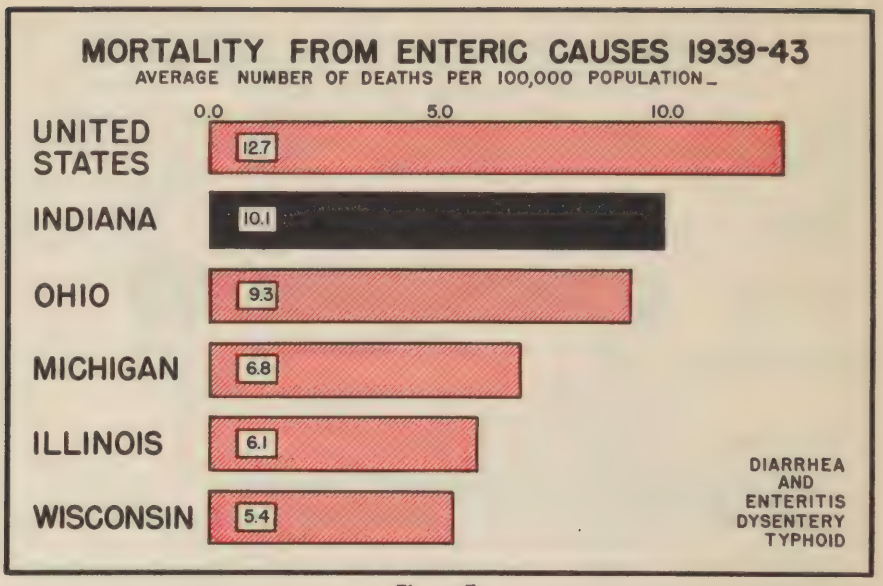


Figure 5

All four of the neighboring states used in this comparison have reduced their enteric disease rates below those of the United States. Note that Indiana offers the bacilli of enteric diseases less competition than any of her sister states. Typhoid fever, for example, should not be difficult to eliminate. Yet in 1944 Northern Indiana experienced an epidemic of typhoid fever startling in extent. Improved sanitation plus

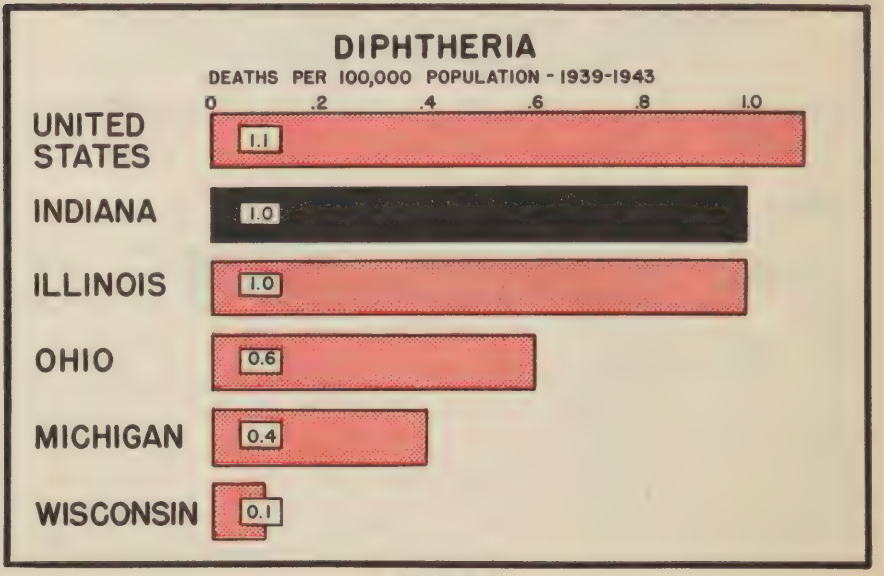


Figure 6

immunization will prevent typhoid fever in Indiana just as effectively as they will in Wisconsin.

Indiana and her sister states have reduced diphtheria deaths materially within the past two and one-half decades. In 1920, diphtheria caused 362 Hoosiers to die and in 1945, 33. Consider Figure 6. During the five years covered, Indiana averaged about 33 diphtheria deaths annually. Had diphtheria in Indiana claimed its victims at the lesser Wisconsin rate, only 3 persons instead of 33 would have died yearly of this preventable disease!

Smallpox, by and large, has practically been eradicated in this country. Indiana and its neighboring states reflect the general progress. Nevertheless, in 1939 in Indiana, 8 persons died of smallpox, indicating that for one reason or another some people still neglect the simple precaution of vaccination.

As this is being written, an outbreak of smallpox introduced from the Orient has occurred on the West Coast. Here in Indiana a number of cases have been reported although not of the Oriental variety. The frequency and ease with which people travel from one section of the country to another invite danger to those areas which lag in preventive programs. The fact that smallpox is no longer a major threat does not mean that immunization can be neglected. Rather it shows what can be done to eliminate all preventable diseases.

Venereal diseases present a special problem. Methods in locating cases and contacts have not kept abreast of improvements in methods of diagnosis and treatment. Both syphilis and gonorrhea have swung upward since the war.

The special difficulties of controlling venereal diseases are well illustrated by the contact chart, Figure 7. In but very rare instances have the mechanics necessary to seek out sources of venereal diseases been established. Perhaps better than any other infectious diseases, syphilis and gonorrhea emphasize the need for local action. They are not exclusively local problems, by any means. But the sources are local. They are in every community of the state, and it is in each and every community that they must be found and brought under control.

The general trend in tuberculosis deaths is downward. In 1930, in Indiana, 2,213 persons[1] died of the disease. By 1943 the annual toll had fallen to 1,248. Certainly that represents great improvement. It is equally certain that a long road remains to be traveled.

Health authorities say that tuberculosis can be eradicated. One primary requisite is the finding of cases before symptoms appear. Early diagnosis is essential to best treatment of the patient and is vitally important in preventing the spread to other persons, especially members of the patient's family. During the war a process was developed which permits the X-raying for screening purposes of great numbers of people quickly and economically. The newly developed unit exposes the image on a 35 mm. or 70 mm. film. Suspect and sure cases as shown by the screening process can be re-photographed on regular 14″x17″ X-ray film for diagnostic study.

[1] U. S. Bureau of Census, Department of Commerce.

Venereal Disease Contact Chart

This is the story of an actual case of syphilis. The woman in the case is represented by the black circle at the very top. Her earliest known sex contacts are shown by the top row of squares. The original case of syphilis in the woman is carried by her victims to other women, thence to other men, and syphilis expands in the community by geometric progression.

Note how often the trail of contacts is lost. Those are the red figures. They are the greatest danger because they are unlocated. What they have contributed to misery is unknown.

It took eight months to trace the spread even this far. Tracing venereal disease to place carriers under treatment is a job. It requires patience, skill and effort. It requires community organization.

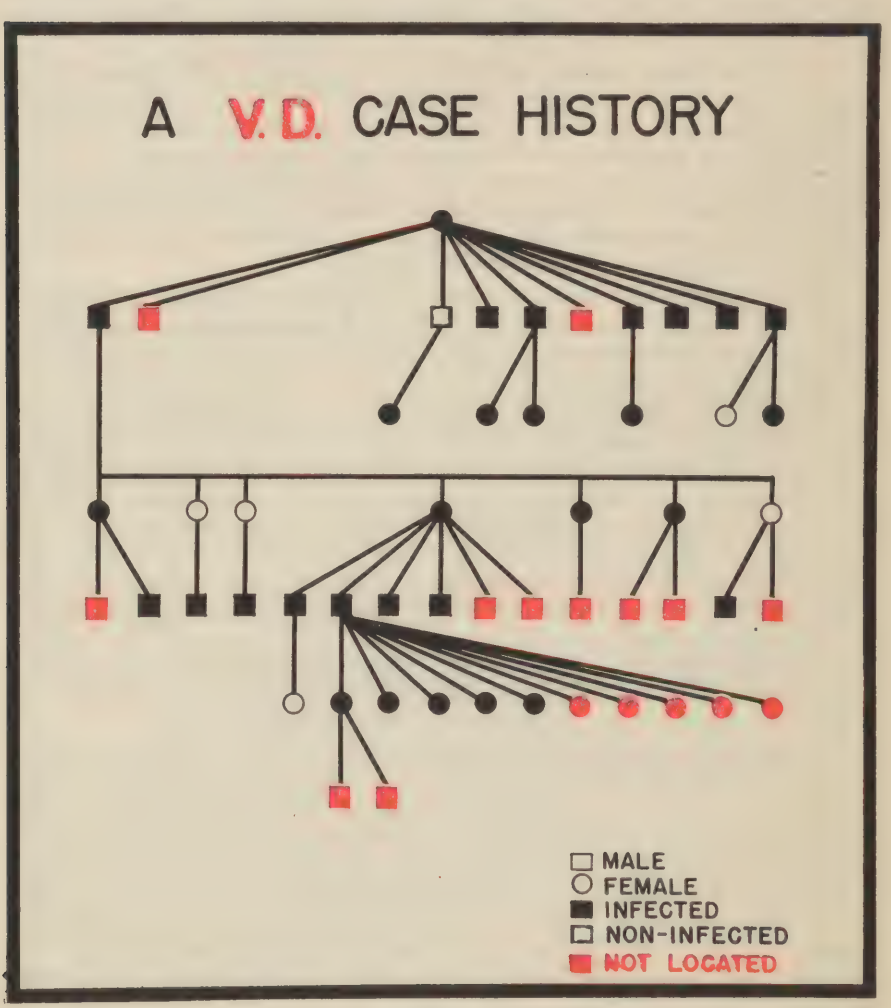


Figure 7

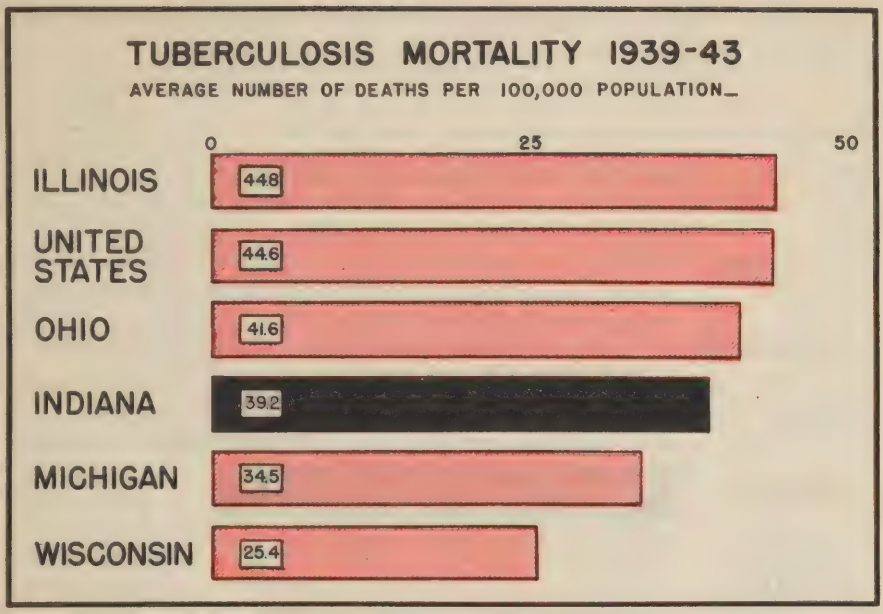


Figure 8

Utilizing the latest methods of case finding, Indiana is now setting the stage for an all-out attempt to eradicate tuberculosis. The five-point program, the result of cooperative planning by all interested agencies and organizations, is as follows:

1. Education—Continuation of educational efforts through lectures, movies, posters, pamphlets, radio to enlighten the public on the cause, mode of transmission, and need for early diagnosis, isolation and treatment of tuberculosis.
2. Promotion of Early Diagnosis by Mass X-ray Screening of the Public—To make available to as many of the public as possible chest X-rays using the 35 mm. or 70 mm. photo-fluoroscopic technique. (This should not be construed as diagnostic X-ray.)
3. Promotion of Better Case Reporting of Tuberculosis and the Effective Utilization of this Information.
4. Consultatory Service to the Tuberculosis Hospitals Throughout the State, and to All Professional and Lay Groups Participating in Tuberculosis Control.
5. Study and Promotion of Needed Legislation.

Although the increase in the rate of cancer during the period 1920 to 1944 may be partially explained by the fact that better case finding and diagnosis exist today, part of the cause must be attributed to the lengthened life span. Degenerative diseases such as cancer occur more frequently in the upper age brackets. Hence, the shift upward in

the average age of the population means that more persons than heretofore will die of diseases most fatal to the elderly.

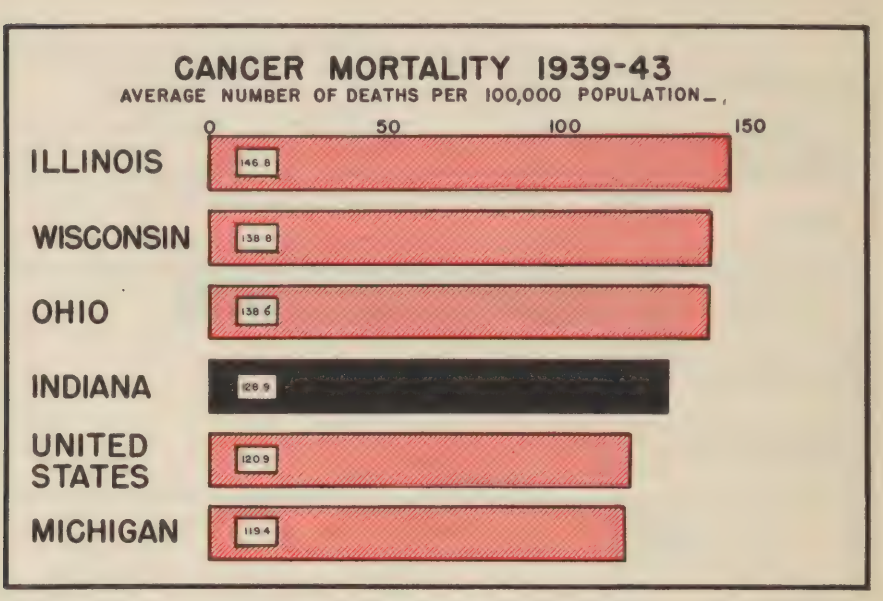


Figure 9

As is true of tuberculosis, early diagnosis is one of the most important factors in the prevention of death from cancer. Early treatment means early arrest. A tremendous job of public education by trained public health workers must be done if the average citizen is to become aware of his own personal role in the fight against this most difficult disease. Education of the public in recognition of the symptoms and the necessity for early treatment of cancer should help halt the current rise in cancer deaths.

Review the record for a moment. What do the vital statistics say? They say that the crude death rate of Indiana is higher than that of the United States or any of the neighboring states studied. They say that she leads her neighoring states in deaths from the preventable diseases studied, diphtheria, and enteric diseases. They say that in not one single instance reported here does Indiana hold a praiseworthy position.

What is being done about it? Since health standards are largely determined by health facilities and services offered, how do we stand in regard to facilities and services available to limit disease and death?

SERVICES OFFERED

Only two full-time local health officers were employed in Indiana in 1943.

As provided by law every county in the state and each city over 2,500 population appoint a local health officer. One hundred seventy-three health officers were employed for part-time work in 1943 and only 2 for full-time service. The part-time health officers now serving cities and counties are all physicians who maintain private practice. The greater portion of their time is naturally consumed by that practice. Consequently, the services which they can render to the community in the way of public health are limited.

Another weakness of the present local health system is evidenced by the lack of public health training experienced by most part-time officers. Just as doctors must have special training to become brain surgeons or obstetricians, so must a doctor receive special training to fit him for public health service. Hoosier part-time health officers are faced with these two handicaps that narrowly circumscribe their contributions to public health: first, a lack of time; second, a lack of public health training.

"A major reason for inadequate civilian health protection in war as in peace," stated the American Medical Association in June, 1942, *"was a failure of many states and counties to provide even minimum, necessary, sanitary and preventive health services by full-time professionally trained personnel. . . . The career of public health as a specialty of medicine requiring graduate university training and experience is so far accepted as a part of the pattern of preventive medicine that the survival of the part-time general practitioner as the local administrator of a health department cannot be encouraged by the medical profession or be recommended to the taxpayer as the best his money can buy in public health."*

Public health nursing, too, is a vital part of any public health program. As of January 1, 1946, Indiana had 399 staff nurses as opposed to a recommended number of 683.[1] Authorities have established as the minimum standard one nurse for each 5,000 persons. Nurses currently serving are not all employed out of state and local funds. Many of them are employed by non-official agencies such as the Visiting Nurse Association, the Tuberculosis Association, and others. Nevertheless, they are public health nurses who contribute not a little to the general health and welfare. Including all the nurses regardless of who employs them, Indiana still has an unfavorable ratio of 1 nurse for each 8,591 persons in the state.

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[1] Emerson, Haven, Local Health Units for the Nation, Commonwealth Fund, 1945.

The above standard was referred to as the minimum. Minimum nursing service does not include extensive bedside care. It does not include special programs for crippled children. If these two services were to be offered, Indiana would need 1 nurse for each 2,500 persons in the state.

Sanitary engineers, sanitarians, and other technical personnel protect the health of the community by inspection and regulation of restaurants, milk, food, drugs, water supplies, and sewage disposal. The nature of their work demands frequent and careful coverage of installations connected with the above throughout the state. No sanitary engineers are assigned at the local level. Variously qualified sanitarians are employed by a few counties and municipalities but not in sufficient numbers. The State Board of Health has estimated that at least 40 engineers and 123 sanitarians are needed for work on the local level alone.

A phase of public health relatively new in development is public health education. For years public health workers in all fields have engaged in health education activities in conjunction with their regular duties. The value of health education has been recognized to such an extent that it is being given a special place in the general public health program and personnel are being trained specifically for health education work. To carry out a program of health education, Indiana employs 5 health educators. Obviously, they cannot begin to provide adequate consultation services to a state of three and one-half million persons.

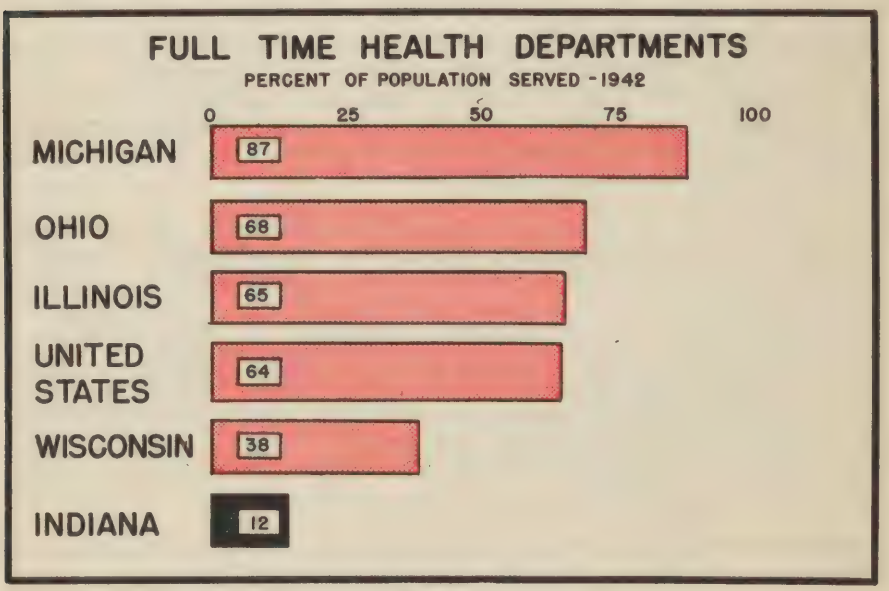

Figure 10

The chart (Figure 10) shows the degree to which the states of Indiana, Illinois, Michigan, Ohio, and Wisconsin have developed local

full-time health departments. The chart speaks for itself. Indiana has since established one additional department. What progress the other states have made is not known and is unimportant to the purpose of this booklet. The fact is all too obvious that in the development of the locally operated and supported full-time department, Indiana has hardly begun to break ground.

EXPENDITURES[1]

The average annual expenditure per capita of the entire United States for local health service is 61 cents. Thirty cents per capita is spent in Indiana. Even this expenditure needs to be broken down to complete the picture. Of the 30 cents spent for the state only 10½ cents actually is provided by the state. Nineteen and one-half cents is supplied by the Federal government. On this basis Indiana ranks 45th among the 48 states.

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[1] Emerson, Haven, Local Health Units for the Nation, Commonwealth Fund, 1945.

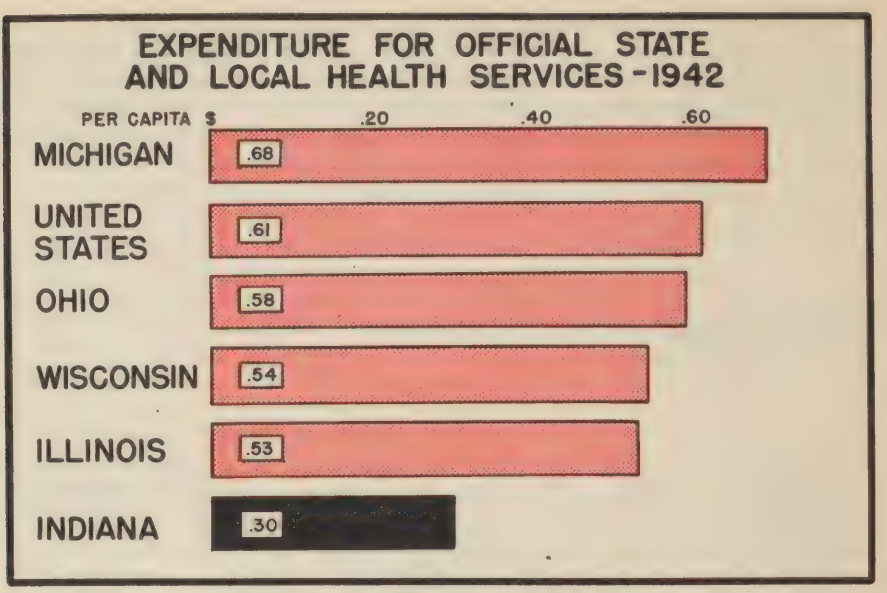
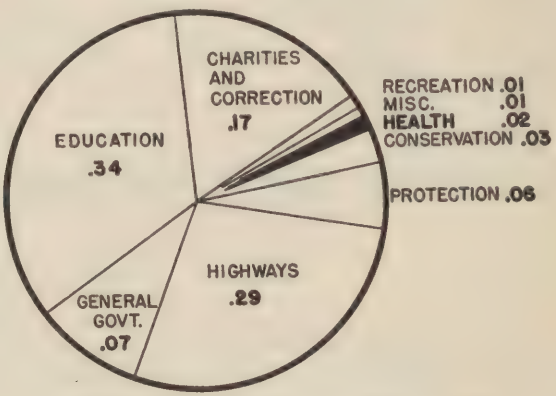


Figure 11

A second method of illustrating expenditures—and frequently a revealing one—is by means of a breakdown of the tax dollar.[1] Such a breakdown discloses a rather glaring disproportion. Is health less important than education? than highways?

Figure 12



Remember that the North-Central States is one of America's wealthiest sections. Now relate the statistics in Figure 11 to the economic status of Indiana and they gain new significance. The fertile corn belt stretches west to east across the heart of Indiana. Her agricultural

[1] Statistical Report, State of Indiana, period ending June 30, 1944.

products are abundant and varied. Her transportation facilities are superior. Approximately 650,000 Hoosiers are employed in some type of mechanical manufacturing producing a wide range of items. Indiana with its spendable income of $729 ranks among the top third in the nation. Still it is near the bottom of the list so far as expenditures for health are concerned!

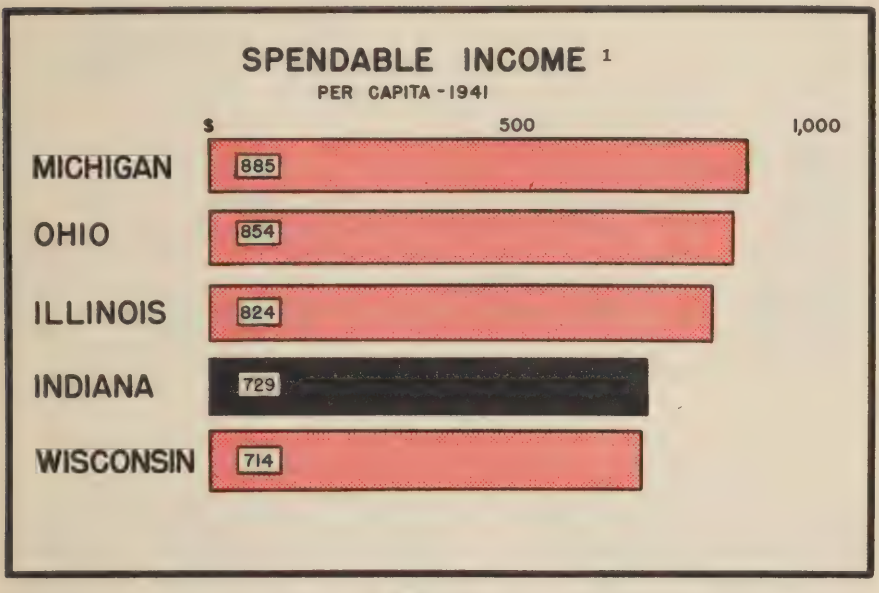


Figure 13

Previously, it was stated that Indiana spends 30 cents per capita for health, part coming from Federal funds. It was shown that only 10½ of the 30 cents spent for public health originates within the state. In dollars, the total spent for public health is $1,012,200. Furthermore, it was emphasized that Indiana has developed local health departments to cover but 12% of her population while in Wisconsin 38%, in Illinois 65%, in Ohio 68%, and in Michigan 87% are so serviced. As Indiana trails in health service, so does she lag in her control of disease and death. And why not? The essentials for a bare minimum health service have not been provided.

But what *can* be done?

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[1] Emerson, Haven, Local Health Units for the Nation, Commonwealth Fund, 1945.

RECOMMENDATIONS

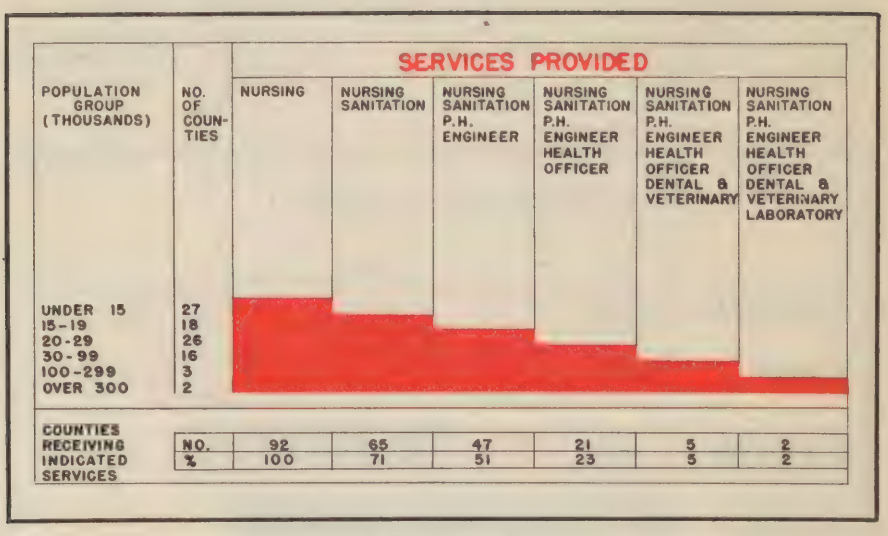

Figure 14

The far left column in the chart above shows the grouping of Indiana counties on the basis of population. The expression "Under 15" in the first column refers to counties under 15,000 in population. The first figure, second column, indicates that 27 counties in Indiana have fewer than 15,000 inhabitants. The vertical columns left to right, 3 through 6, show health services. The figures at the bottom indicate the number and percentage of counties able to afford the services listed in each column. According to the chart all 92 counties should provide nursing service. At least 21 counties should have full-time departments with health officers, sanitarians, engineers, and nurses.

The above recommendations are minimal. They express the least which can logically be expected of a state with the resources Indiana possesses. They do not, however, consider one possible alternative important to the smaller, poorer counties. That alternative is the organization of multiple-county departments. Combinations of counties for better health service make possible pro-rating of costs incident to expansion of services and thus enable the smaller counties to obtain service they otherwise would be unable to afford. It is not the purpose of this booklet to suggest specific combinations. That is the task of the communities concerned. Multiple-county units have been the much sought answer in a number of other states and the Indiana State Board of Health recommends them highly.

At the present time 503 public health workers are employed full-time for work on state and local levels by official agencies. In order

to supply public health service to the extent recommended above, a total of 1,258 trained public health personnel would be required for work on the local level alone. Among them would be 6 dentists and 37 dental hygienists where we now have none; twenty-one full-time health officers instead of 2; twenty-one health educators instead of 5; and additional engineers and sanitarians vital to an effective public health program. Based on the current pay schedules, the necessary minimum personnel could be supplied for approximately $1.00 per capita.

Haven Emerson, noted public health authority and author of the only comprehensive, comparative study of public health standards, has recommended that Indiana could be served adequately by 33 full-time health departments. Dr. Emerson suggests a system of multiple-county combinations which would give Indiana 100% public health coverage. He estimates that his recommended alignment and the acquisition of additional personnel and facilities plus the services now offered could be financed by a $1.00 per capita health expenditure. His estimates, it must be said, are based upon pay schedules foreign to Indiana. Regardless as to the final measures adopted, the concensus is that either the suggestions of Dr. Emerson or those of the Board of Health would supply health services far superior to that now provided.

It is important that this fact be clearly understood: although conservation and development of health and health facilities are the responsibility of both state and local government, the state health organization must continue to be in the main a coordinating, advisory agency, integrating the efforts of all organizations, official and unofficial, to control and prevent disease. It will continue to stimulate, advise, and supply leadership and financial aid to local organizations.

Vital statistics speak truth, and the truth is that Indiana has failed to establish the mechanics necessary to protect the public health. Full-time health officers and their co-workers, the sanitary engineer, the sanitarian, the public health nurse, the health educator, and the dentist can protect the public health if given the opportunity. We do not have them in anything approaching sufficient numbers. We do not have the local framework within which they can work most effectively.

Health *can* be purchased. The price is initiative and, compared to the cost of disease and death, a relatively insignificant sum of money. Buy what protects and restores health and you buy health. If, as Disraeli once said, "The health of the people is really the foundation upon which all their happiness and all their powers as a state depend," then the price cannot be too great.

Here is a paradox. Here is one of the nation's wealthiest states apathetic to the health of its citizens, able to provide but reluctant to act. Here is Indiana.

CRUDE BIRTH RATES, BIRTHS PER 1,000 POPULATION

	1939	1940	1941	1942	1943
United States	17.3	17.9	18.9	21.0	21.5
Illinois	15.0	15.6	17.0	19.2	20.4
INDIANA	17.1	18.1	19.3	21.2	22.4
Michigan	18.3	18.9	20.5	22.4	23.4
Ohio	15.8	16.6	18.3	20.8	21.0
Wisconsin	17.4	17.5	18.2	20.5	21.8

CRUDE DEATH RATES, DEATHS PER 1,000 POPULATION

	1939	1940	1941	1942	1943
United States	10.5	10.7	10.5	10.4	10.9
Illinois	11.0	11.2	10.8	10.8	11.8
INDIANA	11.6	11.8	11.6	11.2	12.1
Michigan	10.1	9.9	10.0	9.5	10.5
Ohio	11.1	11.4	11.3	11.4	11.9
Wisconsin	10.1	10.1	9.8	9.9	10.8

INFANT MORTALITY, DEATHS PER 1,000 LIVE BIRTHS

	1939	1940	1941	1942	1943
United States	48.0	47.0	45.3	40.4	40.4
Illinois	38.0	35.3	34.0	33.1	33.1
INDIANA	39.5	41.9	39.8	36.8	40.0
Michigan	41.9	40.7	38.7	37.2	38.3
Ohio	42.9	41.4	40.8	37.0	39.3
Wisconsin	40.2	37.2	35.1	32.0	35.1

MATERNAL MORTALITY, DEATHS PER 1,000 LIVE BIRTHS

	1939	1940	1941	1942	1943
United States	4.0	3.8	3.2	2.6	2.5
Illinois	3.1	3.0	2.5	2.1	2.1
INDIANA	3.6	2.9	2.5	2.4	2.0
Michigan	3.1	2.9	2.8	2.1	1.8
Ohio	3.9	3.2	2.5	2.1	2.2
Wisconsin	2.8	2.8	2.3	1.8	2.0

CANCER DEATHS PER 100,000 POPULATION

	1939	1940	1941	1942	1943
United States	117.8	120.3	120.0	122.1	124.5
Illinois	143.9	144.1	147.5	147.3	157.4
INDIANA	120.8	127.3	130.0	129.0	132.7
Michigan	118.6	119.4	120.0	116.1	124.8
Ohio	133.8	136.8	139.2	139.0	142.8
Wisconsin	132.6	134.8	134.5	142.4	148.1

TUBERCULOSIS DEATHS PER 100,000 POPULATION

	1939	1940	1941	1942	1943
United States	47.0	45.9	44.5	43.1	42.6
Illinois	46.2	46.1	44.2	41.6	43.5
INDIANA	41.5	40.2	38.5	36.7	36.7
Michigan	36.9	33.6	33.1	34.1	34.5
Ohio	42.7	40.5	42.9	40.9	40.6
Wisconsin	27.8	26.5	24.9	24.3	25.8

DIPHTHERIA DEATHS PER 100,000 POPULATION

	1939	1940	1941	1942	1943
United States	1.5	1.1	1.0	1.0	0.9
Illinois	1.5	1.1	0.8	0.8	1.0
INDIANA	1.6	1.0	1.0	0.5	0.8
Michigan	0.5	0.4	0.3	0.4	0.4
Ohio	0.9	0.4	0.4	0.4	0.7
Wisconsin	0.1	0.2	0.0	0.2	0.2

ENTERIC DISEASE DEATHS PER 100,000 POPULATION

	1939	1940	1941	1942	1943
United States	15.0	13.2	13.1	10.8	11.5
Illinois	7.2	5.7	6.1	5.2	6.1
INDIANA	11.6	7.7	10.6	9.3	10.9
Michigan	8.2	5.1	7.6	6.5	6.8
Ohio	8.8	7.4	10.8	9.2	10.3
Wisconsin	7.1	5.5	4.8	4.1	5.3

Figure 15

Rates were calculated from reports of the Division of Vital Statistics, U. S. Census Bureau.

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